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Vietnam: Is There Oil in Its Future?

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An Intelligence Assessment

Secret

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in	Its	Fut	ure	?		

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An Intelligence Assessment

This paper was prepared by Office of 25X1
East Asian Analysis, and Office of 25X1
Imagery Analysis. Comments and queries are welcome and may be directed to the Chief, Southeast
Asia Division, OEA, 25X1

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	Vietnam: Is There Oil in Its Future?	25 X 1
Key Judgments information available is of 7 January 1986 was used in this report.	Hanoi is moving to begin its first offshore production of crude oil by late 1986, and will only then learn whether an exploration effort that began before the fall of South Vietnam will yield commercial quantities of oil. A Vietnamese-Soviet joint venture is erecting stationary drilling-production platforms off the coast of southern Vietnam in the Bach Ho field where a US oil company first struck oil in 1974. The Vietnamese are hoping for substantial oil production to ease their dependence on the USSR and to spur their economy, which is hampered by energy shortages, transportation bottlenecks, and a severe foreign exchange crunch. The Soviets are continuing exploration elsewhere in Vietnamese waters, but no other major discovery has been confirmed.	25X1
	Although available geological data indicate good conditions for a substantial accumulation of hydrocarbons in the Bach Ho field and the Soviets are confidently constructing production platforms, it is not certain that commercial quantities of oil will be recoverable. Given the results of exploration efforts in 1974 demonstrating the presence of oil- and gasbearing sediments, we believe the Bach Ho field will probably produce modest amounts of crude oil—20,000 to 40,000 barrels per day—and possibly large large volumes of natural gas. This level of oil production would only moderately improve the country's economic prospects and would not end Vietnam's dependence on Soviet economic assistance. Even if we are underestimating output potential, and Vietnam is able to develop crude oil production sufficient to satisfy the current level of domestic demand, we would expect the impact on its overall economic performance to be marginal. Furthermore, we would not expect oil self-sufficiency to lead to a more innovative Vietnamese foreign policy approach to the region. Most specifically, we do not foresee Hanoi compromising on its goals in Indochina and we believe domestic oil production would probably only stiffen Hanoi's resolve.	25X1
	Successful oil development would offer financial benefits to both Hanoi and Moscow, and possibly attract Western oil companies. In our view, however, Western firms are unlikely to invest in exploration in Vietnam unless Hanoi shows a greater willingness than in the past to offer them more promising areas for exploration and adequate financial incentives. Failure of the Bach Ho field to live up to expectations, we believe, would increase Vietnam's isolation from the West because foreign oil companies—whose participation Hanoi seeks—would quickly lose interest in	20/(1
	further exploration in Vietnam.	25 X 1

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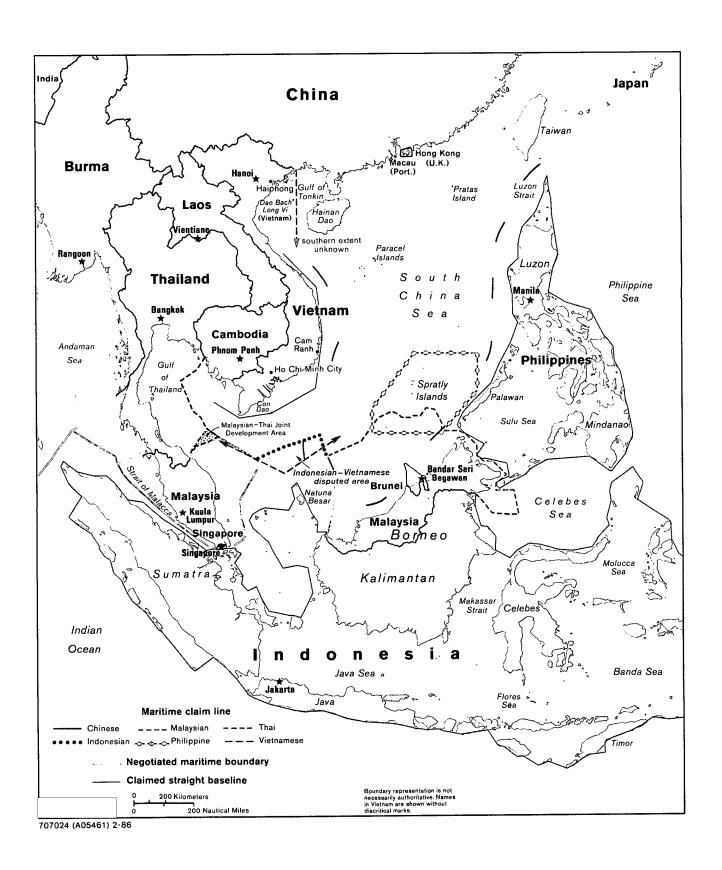
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Vietnam: Is There Oil		
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An End to Import Dependence for Oil	The Soviet Connection	
Vietnam is nearing what it hopes is the production	The Boriet Connection	
stage following a decadelong search for oil. Significant oil production, in our view, would help Vietnam's	Vietnam is totally dependent on the USSR for oil imports,	
ong-term economic prospects by reducing its dependence on imported oil and possibly providing a source of export earnings. Foreign observers in 1984 esti-	Hanoi imported almost 35,000 b/d of petroleum products from the USSR in 1984, valued at over \$450 million. Al-	2
mated that Vietnam's industrial sector was operating at less than 50 percent of capacity because of energy shortages, mismanagement, and transportation bottle-	though we do not know the payment arrangements for Soviet oil sales, the Soviets pressed Hanoi in June 1985 to meet its commitments to export other prod-	
necks. Domestic coal production accounts for about wo-thirds of the country's energy use and we believe	ucts to the USSR in partial payment for Soviet oil and other goods. We believe the Soviets will expect	
nolds little prospect for rapid expansion because of nadequate investment in capital equipment, poor	Hanoi to repay Moscow for its deliveries of refined products as well as its assistance in oil exploration if	
nanagement, and shortages of skilled labor. Imported	the oil development program proves successful.	
oil—much of which we believe is diverted to supporting military operations in Cambodia—accounts for	exploration includes terms that entitle Moscow to a	
nost of the remainder.	share of the output.	2
n the latest exploration round, a Soviet-Vietnamese	We believe Hanoi would like to reduce its dependence	25
oint venture, Vietsovpetro, is preparing to start pro- luction in southern Vietnamese waters. Two previous	on the USSR for oil and to earn hard currency by producing enough crude oil to permit exports after	
ounds of exploration by Western oil companies con- irmed the presence of oil- and gas-bearing sediments.	satisfying domestic consumption. In our judgment, prospects for developing oil exports are not bright,	
The production stage was never reached—the first	given Vietnam's energy and transportation bottle-	
ime because of the Communist takeover of South lietnam in 1975 and the second time because of	necks. We believe domestic industry's growth and consequent demand for energy will outstrip the do-	
isappointing drilling results during 1979-81 (see apendix A).	mestic supply of oil.	2
,	domestic oil produc-	2
The Soviet joint venture is operating in the most promising of the fields off the coast of Vung Tau.	tion would enable Hanoi to eliminate a source of potential leverage for Moscow.	2
	Oil exploration in Vietnam also offers advantages to	
geological conditions re favorable, and the Soviets appear confident that	Moscow. The Soviet oil industry is gaining experience in offshore operations, which will strengthen its abili-	
he field will be productive. Vietnamese officials have	ty to provide similar services in other Third World	
rojected an early start to oil production from the	countries as well as its own offshore fields in the Caspian, Black, and Baltic Seas. With Soviet oil	
Although Vietnam has recovered from the economic reversals of 979-80, its development record remains dismal. Even with the	production declining, a successful development program in Vietnam could also enable Moscow to reduce	
conomic reforms enacted in 1985, we believe Vietnam's growth rill probably lag most of its neighbors in Southeast Asia.	oil shipments to Vietnam and export more to hard	2
	currency countries.	2
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The Saigon-Brunei Basin

earlier seismic results indicates the presence of a large structural trap for oil deposits with good reservoir rocks in the Bach Ho field. The trap consists of an impervious layer, probably shale, overlying a large carbonate reef. When oil is present, such reef structures typically are prolific because they are highly porous and permeable, permitting both the accumulation and flow of large volumes of oil and gas within the reservoir rocks.

Production must be under way for several months, however, before the operator can determine how quickly depletion, pressure drop, or water encroachment into the reservoir will affect the field's potential performance and expected economic life. The Philippines' offshore Nido field, for example, was a promising reef structure that produced over 40,000 b/d when production started in 1978, but dropped to about 1,400 b/d within a year because the structure permitted excessive water encroachment into the reservoir rocks. Undetected geological faults and poor seals are a frequent problem in Southeast Asian oilfields. Faulting and fracturing in the offshore Thai gasfields, for example, forced Bangkok to

drastically lower its estimates of recoverable reserves.

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The presence of a large volume of gas also could complicate production problems. The Mobil-Kaiyo consortium produced 2,400 b/d of crude oil and 860,000 cfd (cubic feet per day) of natural gas in the 1974 test well in the Bach Ho field. A considerably larger volume of gas flowed in Shell's nearby block, which produced about 2,200 b/d of crude oil and 17.5 million cfd of gas. If the 1974 test results from the Bach Ho field continue to hold, the volume of gas will be quite manageable, in our view. However, if conditions resemble Shell's test well results, the structure would essentially be a gasfield and oil production would not be feasible. An attempt to produce oil with such a large volume of gas present could result in a sharp drop in reservoir pressure and a consequent loss of crude oil output. Special equipment would be needed to separate the gas from the liquid hydrocarbons, and the gas would then have to be flared or reinjected. Injection of such a large volume of gas would require considerable skill to maintain reservoir pressures without damaging the potential economic life of the oilfield.

South China Sea for the past several years, but the current activity represents the first real likelihood of such a development. If the field turns out to be commercially viable, we believe the joint venture could largely complete delineation drilling and begin production by late 1986. Hanoi apparently is so confident that it announced in 1985—and Moscow recently confirmed—that the Soviets have already agreed to quadruple spending on oil development in Vietnam during Hanoi's 1986-90 Five-Year Plan. Although production potential will not be known with confidence until operations have been under way for several months, some Vietnamese officials have claimed that the field could produce as much as 200,000 barrels per day (b/d) within three years after beginning production. Foreign Minister Nguyen Co Thach has publicly projected output of 295,000 b/d. On the basis of our analysis of geological characteristics of producing oilfields in the region, however, we

would discount these highly optimistic Vietnamese claims and project output at 20,000 to 40,000 b/d—similar to the level of output of several fields in Indonesian waters in the South China Sea.

Status of the Exploration Effort

The Vietnamese and Soviets are focusing their interest on the Bach Ho field because of earlier successful exploration efforts by Western oil companies in that area. Hanoi has shown interest in other potential oilbearing basins, but has not progressed in exploring them because of both financial and technical constraints and political obstacles from competing claims by neighboring countries

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Oil-Bearing Basins		25X1
Vietnamese officials have long sought to develop oil and gas deposits in Vietnamese territory.		25X1
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Besides the offshore Vung Tau area, the second most likely oil-bearing basin is in the Gulf of Tonkin between the Red River estuary and Dao Bach Long Vi (Bach Long Vi Island). In 1981 and 1982, the Soviets and Vietnamese con- ducted test drilling and took core samples confirming		25X1
the presence of hydrocarbon-bearing sediments,		25 X 2
Some onshore gasfields discovered in the Red River delta in 1975 reportedly began		25X1
producing by the early 1980s. Vietnamese geologists are watching the results of test drilling by foreign oil companies in Chinese waters in the Tonkin Gulf near Hainan Dao (Hainan Island) in the belief that similar	Vietsovpetro is erecting two stationary drilling- production platforms in the Bach Ho field about 65 miles (100 km) off Vung Tau in southern Vietnam (see	25 X 1
geological structures underlie Vietnamese territory.	appendix B one plat- form mostly complete while a second is in an early stage of construction (see above). Work on the first	25 X 1
	platform probably began in early 1983, but has been progressing slowly. ² the drilling rig has been erected and all the deck modules for operating equipment, crew	25X1 25X1
Other geological basins are unlikely, in our view, to be explored soon because of their uncertain status in disputed waters and Hanoi's limited financial and technical resources. A third basin is located in the	quarters, and equipment storage have been installed, but considerable engineering work remains. Essential items such as a gas flare and gas-oil-water separators are not visible and probably remain to be installed. A	
Spratly Islands area but have not drilled any	supply of pipe and other equipment will be needed on	25X1
test wells, for political, technical, and financial rea- sons. The fourth basin is north of Natuna Besar (Natuna Island) and lies partly in waters claimed by Indonesia. Hanoi has not undertaken operations in this region because of the territorial dispute and the	the platform to begin drilling. Although we estimate delivery of the necessary items could take less than two weeks if they were available at Vung Tau, we have not observed such items there, and Soviet practice elsewhere has typically required several months of international bidding for contracts to fabricate and	25X1
distance from shore facilities. The fifth area is in the submerged coral reefs surrounding the Paracel Islands, where the presence of Chinese military forces dims any prospects for oil exploration by Vietnam.	² Progress has been slow for a variety of reasons, including lack of supplies and poor coordination between the Vietnamese and Sovi-	25 X 1
	ets, which impeded the implacement of platform jackets on schedule.	25 X 1

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 \Diamond

Work on the second platform, which is located less	facilities, however, has been progressing at a rate that	
than 5 kilometers north of the first, probably began in	is slower than normal by Western standards.	
mid-1984. Support structures, called jackets, were		25 X 1
already being anchored to the seafloor when observed		
If work	The activities at Vung Tau dovetail with other infor-	25 <u>X1</u>
proceeds at the pace of the first platform, we estimate	mation about the onset of oil production.	25 X 1
that the second structure should be completed by mid-		25 X 1
to-late 1986. In addition to the construction activity,	This down of a main	25 X 1
the Soviet-owned jackup oil-drilling rig, ³ the Ekhabi,	This type of equipment is often used to transfer crude oil to tankers at	25/1
has been drilling in the Bach Ho oilfield, probably to	offshore oil terminals, and can be installed quickly	Ė
further delineate the field's boundaries and refine estimates of the amount of oil reserves present.	and easily. The Vietnamese have said they intend to	
estimates of the amount of on reserves present.	build an oil refinery during the period of the 1986-90	05.74
	Five-Year Plan, but we have seen no evidence of	25 X 1
The Vung Tau Support Base	construction and do not expect them to begin before	
the Viet-	they have a clearer idea of the volume and type of	25 X 1
namese, with Soviet aid, were preparing to build	crude oil to be refined. Although we do not have firm	
several additional platforms. two	data on the characteristics of Bach Ho crude,	2525 X 1
nearly completed jackets, enough for an additional	a potentially high paraffin	25 X 1
platform, and there are stockpiles of tubular steel that	content, which would require special handling in	
will probably be used in constructing additional plat-	storage and transportation. For this reason, we believe	
forms. Also, a second platform construction site,	Hanoi will find it more efficient to export crude oil	25X1
which could double the capacity of the yard, was	and continue to import refined products.	05)//
being completed.		25 X 1
We believe the Vietnemess and Coviets may intend to		
We believe the Vietnamese and Soviets may intend to	Looking Ahead	
transfer any oil produced from the Bach Ho field by	Looking Ahead	
transfer any oil produced from the Bach Ho field by subsea pipeline to shore for storage prior to export.		25 X 1
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Vietnam's Dilemma Despite the prospect of beginning crude oil production within a year with Soviet help, Hanoi continues to seek Western participation in the development of its oil resources. We believe several factors are behind	For its part, Moscow remains determined to maintain its dominance as Vietnam's chief economic benefactor and, we believe, is concerned about the potential for growing Western influence in Vietnam. The quadrupling of aid for oil development during 1986-90 is part
Hanoi's efforts. For one thing, the Vietnamese believe Western technology and expertise will speed oil development, Some foreign observers have said that key Vietnamese leaders also consider improved economic relations with the West	of a sharp boost in economic assistance pledged by Moscow. Press reports say that Moscow promised to double overall economic assistance to Vietnam during 1986-90. At present, we estimate that Soviet economic aid to Vietnam amounts to \$1 billion annually and
an essential element in reviving Vietnam's flagging economy and reportedly advocate Western loans, aid,	military assistance to \$600-800 million a year.

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Wooing Western Oil Companies

Hanoi's undisguised interest in Western oil companies was apparent in 1985 and is continuing this year. In 1985, Hanoi unsuccessfully approached Kaiyo (Japan), Petrofina (Belgium), Elf-Aquitaine (France), AGIP (Italy), BHP (Australia), Bow Valley (Canada), and reportedly also Mobil (United States), and Royal Dutch Shell (Netherlands)

In addition to legal constraints on US firms, which have been prohibited from aiding Vietnam's oil exploration program since the invasion of Cambodia in 1978,

Vietnam has a poor reputation among Western oil companies as a rigid and uninformed partner in oil exploration.

A successful development program by the Vietnamese-Soviet joint venture could revive the interest of Western oil companies, but few companies apparently are willing to risk their own funds in new drilling programs in Vietnam following the disappointing experiences of the West German, Italian, and Canadian oil companies during 1979-81 (see appendix A). Trade journals recently reported several firms negotiating with the Vietnamese, but we believe that foreign oil companies will continue to reject Hanoi's advances without support from their own governments or solid assurances from Hanoi of willingness to offer acceptable financial terms, open up the most promising areas for exploration, and show flexibility in revising exploration programs. Kaiyo, for example, has sought financial backing or guarantees from the Japanese Government, according to trade journal reports. Its continuing interest in exploration in Vietnam, we believe, is based on the hope that Tokyo will eventually provide financial support to Hanoi that would enable Kaiyo to recover its costs when the Cambodian issue is resolved.

Hanoi continues to make its strongest pitch to Japanese companies, and, in our judgment, Japanese businessmen encourage Vietnam's optimism by their expressions of interest. Some 300 Japanese businessmen visited Vietnam in 1985, according to press reporting, to discuss possible business deals. Although private Japanese firms remain very interested in doing business with Vietnam once the Cambodian issue is resolved, and the Vietnamese have offered various

incentives for Japanese participation in oil development, no Japanese firm has been willing to invest its own money in an exploration effort. Furthermore, despite Kaiyo's attempts to tap the Japan National Oil Company for funds, Tokyo has not been willing to break ranks with the United States and ASEAN and violate the ban on extending aid to Vietnam. Partly to make up for the reluctance of Western governments and private firms to invest in Vietnam's oil search, Hanoi is discussing deals with national oil companies, such as India's ONGC (Oil and Natural Gas Commission)

and may obtain some cooperation from the Indians.

Implications for the United States

In our view, Vietnamese oil production at the level we currently project would not have a substantial impact on Vietnamese foreign policy. We believe any boost in oil production would only reinforce Hanoi's determination to stay the course in Cambodia and force an accommodation with ASEAN on its own terms. At the same time, oil production is not likely to reduce Hanoi's overall dependence on the Soviet Union, in our view. Any improvement in Vietnam's overall economic performance stemming from domestic oil production is likely to be marginal. In our judgment, this would not be enough to enable Hanoi to forgo Soviet assistance—especially given Vietnam's lack of other options.

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Appendix A

Western Participation— The Early Years

The search for oil in southern Vietnam began under the former Saigon government, which awarded concessions on 13 offshore areas to Western oil companies. During 1974-75, two groups drilled exploratory wells that yielded promising shows of oil (see map page 8). A consortium of Mobil and Kaiyo of Japan struck oil and gas in the Bach Ho field (block 9) and a Shell group discovered gas in block 12, but both halted operations before they were able to fully evaluate the results of their drilling when Saigon fell to the Communists in April 1975. Hanoi subsequently declared all agreements of the previous government void and designated Mobil's Bach Ho field and several other blocks with favorable geological conditions as part of its national reserve and off limits to foreign oil companies.

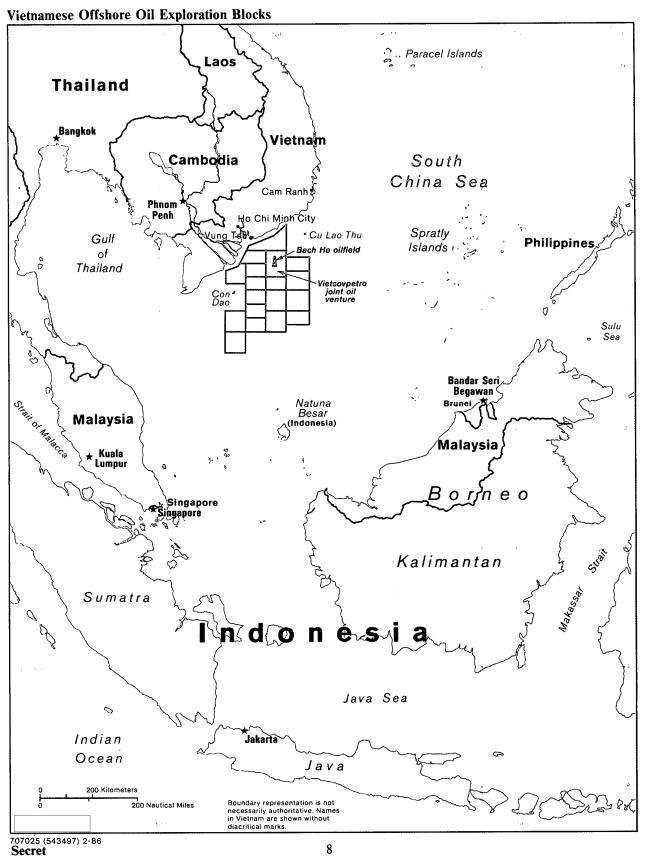
In 1976 Hanoi began negotiations with Western oil companies to resume exploration and signed agreements with three consortiums in 1978, but continued to withhold the most promising areas for the national oil company. During 1979-81, the three groups drilled 12 exploratory wells at a cost of over \$90 million, according to industry press reports, with disappointing results. A West German consortium led by Deminex, operating in shallow waters near shore, discovered a viscous tar that was not commercially exploitable. The company claimed two other structures in its block warranted further drilling, but sought better terms because it believed the potential discoveries probably would be marginal fields. Unable to obtain satisfactory financial incentives, the company relinquished its concession in 1981. Another group headed by the Italian firm, AGIP, drilled six wells at a cost of \$50 million, but made no commercial discoveries. A Canadian firm, Bow Valley, contracted to drill four wells in two blocks, but halted drilling after two unsuccessful wells in 1979. The company tried to renegotiate its contract over the next two years, seeking permission to drill elsewhere, and claiming that the geological characteristics of its blocks were unfavorable. All three groups left in 1981 following the completion of their unsuccessful exploration programs.

Besides the disappointing drilling results, Vietnamese intransigence was a major factor in the departure of Bow Valley, Deminex, and AGIP from Vietnam, in our view. Although company officials believed that Vietnam offered the potential for oil discoveries, press reports indicated they were dissatisfied with both Hanoi's rigid negotiating stance and its unwillingness to offer more promising blocks for exploration. The Vietnamese apparently had not resolved their internal differences over dealing with foreign oil companies and were unwilling to open up blocks reserved for the national oil company to Western firms. Some Vietnamese officials opposed any Western participation in Vietnam's oil exploration, and others wanted only Western technology and assistance. In our view, Hanoi showed little concern for the financial needs of private Western firms and little understanding of technical problems they faced. The outcome was a rigid Vietnamese negotiating stance that did not merely fail to offer adequate incentives to foreign oil companies—it actively discouraged them.

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Appendix B

The Soviet Era, Beginning in 1981

As negotiations with Western firms faltered, Hanoi signed an agreement with Moscow on oil and gas cooperation in June 1980. A year later, the two sides established a joint venture, Vietsovpetro, to develop Vietnam's oil and gas resources in the Bach Ho field. a part of the national reserve withheld from Western oil companies. plans called for the joint venture to drill a total of 12 exploratory wells and 20 development wells during 1981-85—a target that proved unattainable. During 1981-84, the Soviet joint venture conducted seismic studies and began exploration drilling in the block where Mobil and its Japanese partner, Kaiyo, made a promising oil and gas discovery in 1974. Since the beginning of the Soviet program, however, Vietnamese dissatisfaction with delays and inept Soviet performance in oil-drilling operations. We believe the Soviets performed poorly in part because they did not have access to the detailed seismic studies and results of the drilling programs of the Western oil companies. We believe Soviet inexperience in offshore operations also contributed to the delays. The Soviets are committing a large number of technicians to direct activities and to assist the Vietnamese program. some 1,500 technicians were living and working in the Vung Tau area with their families in 1984. Four large apartment buildings of Soviet design have been completed and five others are nearly completed. The apartment complex also includes what appears to be a kindergarten building and community center, and a possible middle-high school under construction.

The Soviets have also been providing equipment and technical expertise in exploring for oil on Vietnam's continental shelf at locations other than the Bach Ho field, including the drillship, Mikhail Mirchink, which has been used off the Vietnamese coast intermittently since early 1984. The Soviets originally purchased this drillship from Finland for use in the Soviet

Arctic. When not working off the Vietnamese coast, it is used by the Soviets to drill near Sakhalin Island.

The second rig, the Ekhabi, was purchased by the Soviets from a Singapore shipyard in 1984 and has been active off the coast of Vietnam since then.

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